

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
AIR AND RADIATION DIVISION
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DATE:

SUBJECT: Inspection of
Flexcraft, Inc., Milwaukee, Wisconsin

FROM: Jeffrey L. Gahris, Environmental Engineer
Enforcement and Compliance Assurance Section (MI/WI)
Enforcement and Compliance Assurance Branch

THRU: Peter B. Spyropoulos, Chief
Enforcement and Compliance Assurance Section (MI/WI)
Enforcement and Compliance Assurance Branch

TO: File

SOURCE NAME AND LOCATION:

Flexcraft, Inc.
7664 N. 81st Street
Milwaukee, Wisconsin 53223

DATE(S) OF INSPECTION: January 27, 2000

PARTICIPANTS:

John Kamrath, Production Manager, Flexcraft, Inc.
Sherry Finley, Environmental Engineer, U.S. EPA
Jeffrey Gahris, Environmental Engineer, U.S. EPA

NEIGHBORHOOD DESCRIPTION:

The Flexcraft, Inc. (Flexcraft) plant is located in a small industrial park in northwest Milwaukee. There are a few single family homes on adjacent streets.

OFF-SITE OBSERVATIONS OF PLANT:

As we approached the plant site by car, we did not see any visible emissions associated with any stack or fugitive emissions sources.

We did not notice any odors. The plant was located in a well-kept building. Weather conditions were mostly sunny, with temperatures around 20° F, with little or no breeze.

GENERAL PROCESS DESCRIPTION:

Flexcraft is a maker of flexographic printing plates¹. It relies heavily on the new digital pre-press technologies. Its customers consist of printing companies that use flexography to print onto packaging materials, primarily for the processed food industry.

Two main types of printing plates are made here, one based on molded rubber technology, the other based on the newer photopolymer plastic technology.

Source P32 - The photopolymer process is located in a separate room within the plant (photopolymer plate room). Here, the solid-sheet plastic plates are exposed to ultraviolet light through a photonegative film. The plates are moved to a processing machine that washes the plates in a solvent. The exposed areas are hardened by a chemical reaction within the plastic that polymerizes the material. The unexposed areas are then dissolved with a solvent to form a relief image. Historically, the solvents used involved chlorinated organics such as perchloroethylene. In 1997, Flexcraft converted to a new solvent, made of 70 percent heptyl acetate and 30 percent heptyl alcohol. The solvent is available under the trade name Optisol. The used Optisol is processed in a distillation recovery unit for re-use. The recovery unit is located in the photopolymer plate room.

Source P33 - The traditional molded rubber plate preparation process is located in a separate area of the plant. Here, a metal plate is coated with photo-sensitive emulsion and exposed to ultraviolet light through a photonegative. The plate is then exposed to a 20 percent nitric acid etch to form an engraving. Subsequently, the metal plate is washed with a solvent rinse to remove the photo-sensitive emulsion. The engraving is used to make a phenolic matrix board. Using one of three presses, the board is pressed into a rubber plate to form a molded rubber plate that is ultimately used in customers' printing presses. The use of trichloroethylene solvent has been discontinued.

¹The discussion that follows is based in part on statements made by John Kamrath, Flexcraft's Production Manager, to the inspection team.

Flexcraft now uses a caustic potash rinse to remove the emulsion.

Wipe Clean operation - In order to proof the quality of the molded rubber plates, Flexcraft uses a small printing press in the plant for small test printing runs. The amount of ink used fills about 6 caulking guns per year. Between printing runs, the press cylinder is wiped clean with kerosene and acetone. Soiled rags are placed into covered containers.

POTENTIALLY APPLICABLE STATE AND FEDERAL RULES:

State consent order, AM-96-203 - This order, executed December 23, 1996, limits the use of VOCs at the plant to 1666 pounds per month or less, and 5.7 pounds per hour or less. Attachment 1.

Wisconsin Rule NR 415.06(2)(a) - Limits emissions of particulate matter from any fuel-burning installation with a maximum heat input capacity less than 250 million Btu per hour, for which construction commenced after April 1, 1972.

Wisconsin Rule NR 431.05 - Limits the opacity of stack emissions to 20 percent for direct sources installed since April 1, 1972.

National Emission Standard for Hazardous Air Pollutants (NESHAP) for halogenated solvent cleaning, 40 CFR Subpart T - Provides work practice requirements and other standards for halogenated solvent cleaners. During the inspection, we determined that Flexcraft is no longer using halogenated solvent materials.

Wisconsin Rule NR 424.03(2)(b) - Requires that the emission of all organic compounds be reduced by 85 percent. This rule applies to processes that emits more than 15 pounds per day, or 3 pounds per hour. Flexcraft's records indicate that its emissions are less than the cutoff amounts.

Wisconsin Rule NR 419.03 - These are general limitations that require reasonable measures and precautions to prevent spillage or emission of organic compounds. This applies to the wipe cleaning at the proof press.

SAFETY CONSIDERATIONS:

Safety shoes needed. No hardhat is required. In the plate-making areas, eye protection is required. Inspectors may be required to sign an OSHA hazard awareness statement prior to entry into production areas.

PRE-INSPECTION CONFERENCE:

After entering the facility office at about 10:45 a.m., we met John Kamrath, the Production Manager for the plant. After showing our credentials, we discussed the purpose of the inspection (Wisconsin rules and Clean Air Act compliance). During the pre-conference we learned the following:

1. The emissions of chlorinated VOCs that had been associated with P33 solvent rinse were replaced with mild caustics in 1997. Attachment 2. Similarly, chlorinated organics were discontinued for the P32 flexographic plate washing. The chlorinated VOCs no longer used include trichloroethylene and perchloroethylene.
2. Because of the reduction in the use of VOCs, the plant did not receive a Part 70 permit, although it had applied for such a permit prior to the process changes.
3. Within the last 5 years the printing plate business has shifted strongly from rubber materials to photopolymer plastics, which now represents 80 percent of Flexcraft's business.
4. The plant is operating at 50 percent capacity.
5. We completed the checklist for vapor "degreasers" for P33, although it was determined that the "MACT" standards at 40 CFR Part 63 Subpart T does not apply. Attachment 3.

PLANT INSPECTION:

At about 11:30 a.m., we began a tour of the plant with Mr. Kamrath.

Boilers and Modines (B20) - We started with the boiler room where we found three small natural-gas fired boilers, as described in the checklist attached to this report. Attachment 4. We observed Modines in several locations throughout the plant. They transfer steam heat to the inside air. These are small units suspended from the plant ceiling. Steam lines from the boilers are connected to the Modines. Each unit contained a transfer radiator and fan used to disperse the heat. The Modines did not appear to be combustion sources.

Photopolymer Process (P33) - In the photopolymer plate room we observed the station where photopolymer plates are exposed to ultraviolet light. We saw adjacent equipment where the plate washing and solvent recovery occurs. Mr. Kamrath indicated that perchloroethylene was no longer used in the plate washing processor. The company now uses 70 percent heptyl acetate and 30 percent heptyl alcohol. The processor contains a 40 gallon tank to store the solvents. We saw could see that the room has no windows, but the processing machine is vented to the atmosphere.

Plate making process (P32) - In the rubber plate room, we saw the acid etching machine and the cabinet where aqueous caustic solution is used to remove the emulsion. We could see that the vent to the atmosphere was removed.

Wipe Clean operation - We inspected the small printing press near the area where rubber plates are made. Mr. Kamrath showed us red cans used to store solvent laden rags after the press is cleaned. They had spring-loaded lids, assuring that they are always covered to minimize solvent release. We saw two other small cans, one labeled "kerosene", the other labeled "acetone".

RECORDS REVIEW:

We reviewed the monthly solvent usage summaries kept by Flexcraft for 1997 through 1999. Attachment 5. The company tracks the surface area in square inches of printing plate production. Using an emission factor provide by its vendor, Flexcraft calculates the VOC emissions for both P32 and P33. Mr. Kamrath said he also relies on mass balance calculations to verify the emission rates. Emissions from P32 are calculated to be 1 to 1.6 pounds per hour, or 34.5 to 265.6 pounds per month. Since December 1997, when the use of trichloroethylene was discontinued, emissions of VOCs from P33 have been recorded as "zero".

POST-INSPECTION CONFERENCE:

We indicated to Mr. Kamrath that we did not observe any compliance issues during this inspection.

RECOMMENDED FOLLOW-UP:

None required.

cc: WDNR, Southeast Region

ATTACHMENT 1

STATE CONSENT ORDER EXECUTED APRIL 24, 1997

ATTACHMENT 2

**HALOGENATED SOLVENT CLEANING NESHAP
STATEMENT OF COMPLIANCE**

ATTACHMENT 3

**HALOGENATED SOLVENT CLEANING NESHAP
APPLICABILITY CHECKLIST**

ATTACHMENT 4

SMALL BOILER INSPECTION CHECKLIST

ATTACHMENT 5

FLEXCRAFT, INC. VOC EMISSIONS REPORT

Standard bcc's: official file copy w/attachment(s)
 originator's file copy w/attachment(s)
 originating organization reading file w/attachment(s)

Other bcc's: Valentine
 Farley

c:enf\Flexinsp.wpd